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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,702	05/19/2006	Keon Joon Ahn	2108.2	5121
7590 Hammer & Hanf Suite G 3125 Springbank Lane Charlotte, NC 28226		10/29/2007	EXAMINER LEGASSE JR, FRANCIS M	
			ART UNIT 2878	PAPER NUMBER
			MAIL DATE 10/29/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/579,702	AWN ET AL.
	Examiner	Art Unit
	Francis M. LeGasse Jr	2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-12 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 19 May 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 19 May 2006.
- 4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
- 5) Notice of Informal Patent Application
- 6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 7 and 12, Applicant recites, "the wave guide has an incidence face and a refraction face, which are plano-convex. It is unclear if each face is plano-convex or if the incident face is plano and the refraction face is convex. Applicant is required to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Antonelli et al. (US Patent N. 6,355,937 B2, "Antonelli", hereinafter).

Regarding claim 1, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device comprising:

- a cover glass (1) closely contacting an object (finger); (col. 4, lines 66-67)
- a light source unit (2) emitting light to the cover glass; and
- a light receiving unit (1d, 3, 1e, 4) reflecting the light reflected by the object (finger) in a predetermined direction and condensing the light, and picking up an image of the light.

Regarding claim 2, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device comprising

- a light source emitting light(2) and a light source guide (2a) guiding the light emitted from the light source (2) to the cover glass (1).

Regarding claim 3, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device wherein

- the light receiving unit (1d, 3, 1e, 4) comprises:

- a reflecting mirror (1d) for reflecting the light reflected by the object (finger) at the cover glass (1), the reflected light traveling horizontally;
- at least one condensing lens (3, GRIN) disposed on the path of the light reflected by the reflecting mirror (1d) to condense the light; and
- an optical image sensor (4) picking up the image of the light transmitted through the condensing lens (3, GRIN)

Regarding claim 4, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device wherein

- the light receiving unit (1d, 3, 1e, 4) comprises:
- a reflecting mirror (1d) for reflecting the light reflected by the object (finger) at the cover glass (1), the reflected light traveling horizontally;
- at least one condensing lens (3, GRIN) disposed on the path of the light reflected by the reflecting mirror (1d) to condense the light
- second reflecting mirror (1e) for reflecting the condensed light transmitted through the condensing lens (3, GRIN) downward; and
- an optical image sensor (4) picking up the image of the light reflected by the second reflecting mirror (1e).

Regarding claim 5, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device wherein

- the light receiving unit (1d, 3, 1e, 4) comprises:
- a reflecting mirror (1d) for reflecting the reflected light in a predetermined direction;

- at least one wave guide (3, GRIN) installed in the predetermined direction to the reflecting mirror (1d), to guide and condense the light; and
- an optical image sensor (4) installed next to the wave guide (3, GRIN) to pick up the image of the condensed light.

Regarding claim 6, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device wherein

- the light receiving unit (1d, 3, 1e, 4) comprises
- a first reflecting mirror (1d) for reflecting the reflected light in a first direction;
- at least one wave guide (3, GRIN) installed in the first direction to the first reflecting mirror (1d), to guide and condense the light;
- a second reflecting mirror (1e) for reflecting the condensed light to a second direction; and
- an optical image sensor (4) installed in the second direction to the second reflecting mirror (1e), to pick up the image of the condensed light

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7-9 and 12, to the extent taught and understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Antonelli.

Regarding claims 7 and 12, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device comprising a waveguide (3, GRIN) but fails to teach that the incidence face and the refraction face are plano-convex.

It is common knowledge in the art to use a plano-convex type surface in a waveguide.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a plano-convex surface in the wave guide of Antonelli because it will collimate the beam traveling parallel to the lens axis and once the light passes through the lens it will focus the light onto a specific spot, thus improving both the accuracy and intensity of the light impinging upon the image sensor.

Regarding claim 8, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device comprising an optical path

in the predetermined direction that is longer than a length to the optical sensors but fails to teach that the length provides a sufficient depth of focus.

It is common knowledge to arrange the optical path in a manner as to assure proper alignment and focus of a detector.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an optical path that provides a sufficient focus in combination with the optical pointing device of Antonelli because it will increase the resolution of the image sensor, thus improving the quality of the device.

Regarding claim 9, Antonelli (*figure 6*) discloses an optical pointing device capable of being installed at a slim personal portable device comprising an optical image sensor (4) but fails to teach that the light receiving unit includes a shading unit installed on the path of the light to remove noise of the light.

It is common knowledge in the art to design an image sensor containing a device or method to remove or reduce noise.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a specific device to reduce noise in the optical pointing device of Antonelli because it will improve the quality of the signal, thus improving the image being detected.

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baharav et al. (US 7,274,808 B2, "Baharav", hereinafter)

Regarding claim 10, Baharav (figures 2, 16A and 16B) a personal portable device equipped with an optical pointing device capable of being installed at a slim personal portable device wherein

- an optical pointing device (100) including:
 - a cover (115) closely contacting an object (finger);
 - a light source (120) unit emitting light to the cover (115); and
 - a light receiving unit (144, 159, 130, 135, 140) reflecting the light reflected by the object (finger) in a predetermined direction, condensing the light (130), and picking up an image (140) of the condensed light;
- a display (510) displaying a view for showing various information and a pointer;
- a display drive unit driving the display; ¶[0102]
- an image processing unit detecting the speed, direction, and distance of the movement of the object based on information on the image picked up by the optical pointing device; and (¶[0101] and ¶[0104])
- a control unit controlling the display drive unit to change the position of the pointer according to the speed, direction, and distance of the movement of the object. (¶[0104])

Baharav fails to teach that the cover is a glass cover.

It is common knowledge to use glass to cover electronics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a glass cover in the personal portable device of Baharav

because it will provide a transmissive cover while ensuring that dirt, particles or any other type of unwanted material will not enter the electronics of the device.

Regarding claim 11, Baharav (*figures 2, 16A and 16B*) a personal portable device equipped with an optical pointing device capable of being installed at a slim personal portable device wherein

- a keypad (500, of a cell phone) including click buttons, wherein the control unit performs the operation according to the handling of the click buttons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Francis M. LeGasse Jr whose telephone number is (571) 272-9798. The examiner can normally be reached on Monday through Thursday 7:00 am to 5:30 pm E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Francis M. LeGasse Jr.
Patent Examiner AU 2878
571.272.9798



Georgia Epps
Supervisory Patent Examiner
Technology Center 2800